

## Abstract

Biological agriculture is a recognized means for agricultural production that agricultural ecosystem health at the same time promote to healthy food production. Karela is a plant with multiple medicinal properties of the fruit is used to control diabetes. To evaluate the effects of biological and chemical fertilizer on quantitative and qualitative characteristics of medicinal plant Karela, experimental randomized complete block design with three replications in Zabol University Agricultural Research Institute was conducted. The treatments were: control or 100% chemical fertilizer (urea 180 kg/ha + phosphate mono-ammonium 100 kg/ha + Potassium 100 kg/ha) (F1), nitroxin + phosphate fertilized 2 (F2), nitroxin + fertilized phosphate 2 + 75 % chemical fertilizer (F3), nitroxin + fertilized phosphate 2+ 50% chemical fertilizer (F4), nitroxin + fertilized phosphate 2 + 25% chemical fertilizer (F5), nano-bio-fertilizer (F6), nano-bio-fertilizer + 75% chemical fertilizer (F7), nano- bio-fertilizer and 50% chemical fertilizer (F8) and nano-bio-fertilizer + 25% chemical fertilizer (F9), respectively. Means comparison showed significant superiority of the combination of biological and chemical fertilizers used to separate the used of this fertilizers. The results of the data analysis showed that different levels of chemical fertilizers with bio fertilizers had significant effect on photosynthesis pigments, carbohydrate and fruit yield per square meter. F3 treatment able to allocate the highest amount of flavonoids. Most of the fruit yield earned at F4 treatment that compared to the control treatment was 25/33 percent increased. alsoThe amount of nitrogen, phosphorus, potassium, calcium, manganese fruit and zinc grain were significantly affected by treatments. . fruit Iron and grain weight and number of fruits per plant was not affected by treatments. Most amount of the carantin glycoside in F7 treatment and the highest amount of Momordisin alkaloid showed in F5 treatment. The results suggest that the use of biological fertilizer alone or in combination with chemical fertilizer in improving medicinal plant traits Karela had positive effect and instead of continuous use chemical fertilizer, can be used optimization of Biological inputs had steps toward sustainable agriculture and quality assurance medicinal plants.

**Keywords:** Karela, bio-fertilizer, yield, photosynthetic pigments, chromatography, active substances



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**Effects of biofertilizers, chemical fertilizers and  
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characteristics of Karela (*Momordica Charantia*)**

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